NOTES

The Hon. Sir Charles Parsons, K.C.B., F.R.S., has been nominated as president of the British Association, the meeting of which is to be held at Bournemouth in September next.

The annual autumn meeting of the Institute of Metals will be held on Wednesday, September 20, in the rooms of the Chemical Society, Burlington House, London. Sir George T. Beilby will preside, and a number of important metallurgical papers will be presented and discussed.

The fourth annual meeting of the Indian Science Congress will be held at Bangalore on January 10–13. H.H. the Maharajah of Mysore has consented to be patron of the meeting, whilst Sir Alfred Bourne, K.C.I.E., F.R.S., will be the president. The following sectional presidents have been appointed:—Mr. J. MacKenna (Pusa), Agriculture and Applied Chemistry; the Rev. D. Mackichan (Bombay), Physics; Dr. Zia Ud-din Ahmad (Aligarh), Mathematics; Dr. J. L. Simonsen (Madras), Chemistry; Mr. K. Ramunni Menon (Madras), Zoology; Mr. C. S. Middlemiss (Calcutta), Geology. All communications relating to the congress should be addressed to Dr. Simonsen, the Presidency College, Madras.

Great satisfaction is felt by everyone in the news published in the *Daily Chronicle* on September 5 that Sir Ernest Shackleton had succeeded in rescuing the twenty-two members of his Antarctic expedition marooned on Elephant Island since April 15. Three previous attempts to reach the island were unsuccessful, but with characteristic persistence Sir Ernest continued his efforts to relieve the men, and sailed from Punta Arenas on August 26 in the *Yelcho*, a small Chilian steamer. On August 30, after steering in a fog through numerous stranded bergs, he reached Wild's camp at 1 p.m., and at 2 p.m. the vessel was homeward bound. On September 3 Punta Arenas was reached, and the message "All saved. All well," was dispatched to the *Daily Chronicle*, from which the following summary of Mr. Frank Wild's report is taken:—"On April 25, the day after the departure of the boat, the island was beset by dense pack-ice. The party was confined to a narrow spit of land, 250 yards long and 40 yards wide, surrounded by inaccessible cliffs and ice-laden seas. We were forced to abandon our ice-hole, which was made untenable by the snow. We made a dwelling of our two boats, supported by rocks, and set up as far as practicable from the sea. The weather continued appalling. In May a heavy blizzard swept much valuable gear into the sea. Fortunately, owing to the low temperature, an icefoot formed on the seashore, and this protection was the means of saving us from total destruction. From June onwards the weather was better as regards wind, but we were under a constant pall of fog and snow. At the beginning of August we were able to collect seaweed and limpets, which formed a valuable change in our diet, but the deep water, heavy seas, and ice prevented us from fishing. On August 28 the gale drove the ice-pack from the island, and on August 30, through the lifting fog, we caught sight of the *Yelcho* steering through a maze of stranded bergs. An hour later we were homeward bound." Sir Ernest Shackleton has announced the safe return of the party in a telegram to the King, who has replied:—"Most heartily rejoice that you have rescued your twenty-two comrades all well. Congratulate you on the result of your determined efforts to save them, and that success crowned your third attempt. I greatly admire the conduct of their leader, Frank Wild, which was so instrumental in maintaining their courage and hope. I trust you will soon bring them all safely home.—George R.I."

Mr. R. W. Doyne, who died at Oxford on August 30, was well known as an ophthalmologist. Born on May 15, 1857, educated at Marlborough and Keble College, Oxford, he became a naval surgeon, but early relinquished this work to specialise in ophthalmic practice. He returned to Oxford, and devoted his boundless energy and enthusiasm to the prosecution of his favourite study in that town and University. There he succeeded in founding the now flourishing Eye Hospital, and thanks to the munificence of the late Mrs. Ogilvie, obtained recognition of ophthalmology in the University, being himself appointed first Margaret Ogilvie reader in ophthalmology. The clinical material at Oxford is not large, but from the point of view of research the paucity of cases is not without its advantages, and was utilised by Doyne to the fullest extent. The inhabitants of the surrounding country districts are wedded to the soil, so that cases can be kept under observation for many years, and hereditary disorders can be traced through several generations. Doyne was thus enabled to study forms of hereditary cataract, etc., under the most favourable conditions, and thereby to contribute many valuable papers to the Transactions of the Ophthalmological Society. He was enthusiastic in ophthalmoscopic work, and ungrudging in spending money on having coloured drawings made of interesting fundus cases. His collection is extremely fine, and formed one of the attractions at the annual gathering of ophthalmologists which has for several years met at Oxford at his invitation, and is known as the Oxford Ophthalmological Congress. Doyne was very keen on sports, and his papers on "The Eye in Sport," dealing with such topics as the influence of visual acuity, binocular vision, and so on, in shooting, fencing, and other sports, are important, not only for the brilliant application of physiological facts to practical conditions, but also for the light they throw on visual phenomena themselves.

News has just reached us of the death, on May 21, of Prof. J. A. Portchinsky, the distinguished Russian entomologist, at sixty-eight years of age. Prof. Portchinsky graduated in 1871 at the Natural History Faculty of the Petrograd University. He was conservator and librarian to the Russian Entomological Society, and between 1874 and 1894 occupied the post of its scientific secretary. In 1894 he was appointed member of the scientific committee of the Ministry of Agriculture, chief of the Entomological Bureau of this committee, and chief editor of its Memoirs, in which capacity he remained until his death. The number of these Memoirs of which he was himself the author amounts to twenty-four, besides a great number of articles and scientific papers published in many journals and periodicals. He travelled extensively over Russia, Caucasia, and Turkestan, and collected a mass of observations and materials on the biology of insects. He was also the reviewer of "Applied Entomology in Russia."

Prof. Ferdinand Fischer, professor of chemical technology in the University of Göttingen, whose death, at the age of seventy-four, was recently announced, was born at Rodermühle a. Harz in 1842 and graduated at Jena in 1869, after previously studying both in Göttingen and in Berlin. In 1897 he was appointed to the chair at Göttingen, a position he occupied with conspicuous success for close upon twenty years, during which period he made valuable contributions to chemical technology, both by his writings and by his experimental work. His investigations have been concerned chiefly with problems connected with solid and gaseous fuel, with the examination of water supplies, and with the analytical control of the Le Blanc soda and other industrial processes. In association with these inquiries he designed the many forms of apparatus which bear his name, of which that for accurate gas analysis, his modification of the Orsat apparatus, and his calorimeters for gaseous and for liquid fuel are the best known. Although these are, to a considerable extent, superseded to-day, they each mark an important advance in the construction of the apparatus used for these purposes, and successfully fulfilled the special objects for which they were designed. It is, however, principally as an author and as an editor that Fischer rendered his greatest service to the advancement of chemical technology. He revised and edited several editions of R. v. Wagner's standard text-book on chemical technology, which has been translated into many languages, including English, and from 1887 to 1910 he acted as editor, in succession to Wagner, of the invaluable "Jahresberichte der chemischen Technologie." Fischer's well-known treatise, "Die chemische Technologie der Brennstoffe," which was first published in 1880, and has passed through many editions since then, has always stood as an authoritative work on this branch of chemical technology, and his "Taschenbuch für Feuerungstechniker," which has also passed through many editions, has served as a most useful guide to technologists. Other publications have dealt with a variety of fuel problems and allied subjects, with the technology of water supplies, and with the study of chemical technology. Fischer also acted as editor of *Dingler's polytechnisches Journal* and of the *Zeitschrift für angewandte Chemie* for a number of years, and in 1887 he founded and edited the *Zeitschrift für die chemische Industrie.* Apart from these contributions to chemical literature, Fischer took a leading part in the establishment of the German Society for Applied Chemistry, which has since developed into the important Association of German Chemists.

IMPORTANT developments have taken place recently in connection with the work of the Corrosion Committee of the Institute of Metals, which for the last six years has been investigating the causes of corrosion of marine condenser tubes. In the first place the committee has been recognised by the Privy Council Committee for Scientific and Industrial Research, and has been enlarged so as to include representatives of several Government departments, including the Admiralty, Lloyd's Register, and the Board of Trade, and some of the leading engineering societies. As from October 1 next it will receive a grant of 900*l.* in aid of its work for the forthcoming year. Hitherto the experimental work has been under the charge of Dr. Bengough at the University of Liverpool. In future the experimental condenser plant will be installed and worked at the Southwick Electricity Generating Station of the Brighton Corporation, an arrangement which is due to the initiative and good offices of Mr. J. Christie, their municipal electrical engineer, and will enable the plant to be worked under conditions much more nearly approximating to "practical" than has been possible hitherto. Laboratory research work in connection with the same problem will be carried out by Drs. Bengough and Hudson in the metallurgical laboratories of the Royal School of Mines, South Kensington, which have been gratuitously placed at the disposal of the committee by the authorities.

IN 1902 Mr. A. Hrdlička published an account of all the crania of the Tenape or Delaware Indians which at that time were preserved in American museums. Since then fifty-seven skeletons have been discovered in the Upper Delaware River valley, and the same writer publishes in Bulletin No. 62 of the Bureau of American Ethnology an elaborate monograph describing this fresh material. To this he has added a general sketch of Eastern Indian crania in general. The most interesting result of the survey is that, while the Iroquois are regarded as a linguistic stock distinct from the Algonquian, the measurements of skulls of representatives of the two stocks show no such distinction. It is also evident that the eastern Algonquian and Iroquois Indians, while essentially of one type, approached purity of type much more in the north-eastern Atlantic States and in south-eastern Canada than further south. The Iroquois group was a complex of tribes, some of which are still poorly represented in American collections, and it is possible that more abundant material will exhibit some differences between these tribes owing to their varied earlier associations, and perhaps to other agencies, among which we may suspect that varieties of environment played an important part.

WILLIAM WILBERFORCE, who played such an important part in the abolition of slavery, was born in the fine old Elizabethan mansion in High Street, Hull, now known as Wilberforce House, which has been converted into a public museum and memorial of Wilberforce. Mr. T. Sheppard, the energetic curator, has succeeded in collecting a fine series of the numerous medals issued in connection with the abolition of slavery, and he describes them in No. 109 of the useful series of Hull Museum Publications. The first exhibit in the collection was issued in 1807, immediately on the abolition of the slave trade in the British Dominions, this being the precursor of the abolition of slavery itself in England some years later. The series closes with the medal issued by the Hull Corporation in 1906, when the museum was opened. The portrait of Wilberforce, a very pleasing one, was taken from a miniature in the possession of the Rev. J. B. Harford, son of the author of the Life of the statesman.

THE July issue of the *National Geographic Magazine* is entirely devoted to a description of Mexico, as usual illustrated by a fine series of photographs. The most interesting contribution is that by Mr. F. H. Probert, "The Treasure Chest of Mercurial Mexico," a description of the mining centre at Guanajuato, where silver was discovered by a peon at La Luz in 1554. Rayas, a few years later, discovered the mine which still bears his name, and in 1557 the Rayas and Mellado workings led to the recognition of the Veta Madre, the mother lode of Guanajuato, which has yielded untold riches. Cecil Rhodes prophesied of Mexico that "from her hidden vaults, her subterranean treasure-houses, will come the gold, silver, copper, and precious stones that will build the empires of to-morrow and make future cities of this world veritable New Jerusalems." The Veta Madre has already produced gold and silver to the value of more than a billion dollars, and, given the possibility of decent government, the prediction of Rhodes is sure to be fulfilled. The worst feature of the situation is the poverty and social degradation of the mining population.

AN interesting addition to the exhibits in the Insect Gallery of the Natural History Museum, South Kensington, has been made in the shape of a collection of "trout-flies," presented by Mr. Martin H. Mosely. The collection consists of a series of the natural insects that serve as food for trout and grayling (preserved in formalin placed in shallow glass dishes), and along with them a series of the artificial insects which are made in imitation of the natural ones and used as bait by anglers.

THERE has been placed on exhibition in the Central Hall of the Natural History Museum, South Kensington, a small series of specimens illustrating the natural history of the worm, Bilharzia (Schistosomum), that causes the disease of the bladder and rectum, known as bilharziosis, common in Africa, the West Indies, and Japan. Actual specimens are shown of the worms as they occur in the veins of the intestine, and examples are shown of pond-snails which are known to harbour the alternate generation of the worms. The life-history of the worm is explained by means of drawings of the egg and the sporocyst and cercaria stages, and photographs of bilharzia-infected canals in Egypt, from Lieut.-Col. R. T. Leiper's report of 1915, are exhibited to illustrate how the disease may be communicated to human beings by bathing or standing in the infected water.

IN the *Zoologist* for August Dr. J. M. Dewar records a series of experiments on habit-formation in a queen wasp which had its nest at the end of a long tunnel opening into a disused rabbit burrow. The approach to the nest at the time of its discovery was made, not by the burrow, but through the tunnel. How she would behave when this tunnel was plugged was the task he set himself to discover. His observations lead him to the conclusion that "the learning of the wasp did not transcend the sensori-motor level, and that images or ideas were not elements essential to an explanation of the observed reactions." He attaches, apparently, no importance to the fact that when the wasp first found the entrance plugged she gained access to the nest by the burrow, about 50 cm. below the tunnel, and endeavoured to break away the plug from behind.

MR. R. GREENAWAY, in the *Zoologist* for August, comments at length on the inability of natural selection to explain certain various phases in the evolution of the protozoa. The protective coverings of Difflugia and Arcella among the Thecolobosa, or the addition of flagellæ in the Flagellata, he argues, cannot be explained by natural selection, since this would demand similar armature and locomotory organs in all the species of their respective types which are now living side by side in the same environment. He concludes, therefore, that these differences are to be explained, at least in part, by "some form of the orthogenesis theory."

OWING to the difficulty of obtaining material, the ovarian tissues of the Marsupialia have been very little studied. Thus the memoir which appears in the *Quarterly Journal of Microscopical Science* (No. 244, N.S., July), by Dr. C. H. O'Donoghue, will be extremely welcome. He describes at length the corporea lutea and the interstitial tissue of the ovary, more especially in regard to Phascolarctos, Trichosurus, and Didelphys, thus supplementing his earlier observations on Perameles, Macropus, and Phascolomys. Perhaps the most important item in the present communication concerns the corpus luteum of Phascolarctos, which remains as a hollow cavity throughout the period of pregnancy, and which during the time that the embryo is in the uterus is quite unlike the corpus in any other known marsupial, or, indeed, that of any other mammal. As a result of his investigations, the author is able to show that the corpus luteum of the marsupial and the eutherian are indistinguishable, thus directly contradicting the statements made on this subject by Fraenkel and Cohn, and repeated without criticism by Van der Stricht.

IN Memoirs of the Geological Survey of New South Wales, Ethnological Series, No. 2, Mr. R. Etheridge, curator of the Australian Museum, Sydney, discusses the origin of the warrigal (*Canis dingo*), the name "dingo" being a contemptuous term applied by the aborigines to the white man's cur. He reviews the evidence collected by Sir F. McCoy and Mr. G. Krefft, who found its remains associated with a fauna now extinct. Mr. Etheridge adds to this that he thinks he has identified teeth of a dog somewhat larger than the warrigal among a quantity of jaw bones and loose teeth found in the Wellington Cave. He leaves the question of the origin and date of introduction in doubt, but the evidence here collected does not seem to conflict with the view that it was like the Indian pariah dog, and was brought by emigrants from the Malay region.

THE report on the investigation of rivers undertaken by the Royal and Royal Geographical Societies has been published by the latter society. The investigation, which was begun in 1906, had in view the examination of certain rivers in England and Wales for the purpose of ascertaining the volume of discharge, the suspended and dissolved matter in wet and dry periods and the total for the year, the erosion of the surface of the basin, the rainfall in each basin, and the extent occupied by calcareous and non-calcareous, and by pervious and impervious formations. The rivers selected for examination were the Exe, the Medway, and the Severn. These were selected as river basins representative of different geological conditions. Circumstances prevented the inclusion of the Salisbury Avon as a typical chalk river. The report is the work of various authors, including Dr. Aubrey Strahan, Mr. N. F. Mackenzie, Dr. H. R. Mill, and Dr. J. S. Owens. Attention was directed to the desirability of such investigations by the recent report of the Royal Commission on Canals and Inland Navigation, but the work requires to be carried on systematically throughout the country. The present report serves to indicate the value of such a survey of our water resources, and the lines on which it should be conducted.

IN the *Geographical Review* for July (vol. ii., No. 1) there is a paper by Messrs. W. G. Reed and H. R. Tolley, of the U.S. Department of Agriculture, on "Weather as a Business Risk in Farming." Climatic data expressed in averages afford a basis for determining the general character of a region, but the farmer requires to know the frequency or magnitude of departures from the average. Late spring and early autumn frosts do great harm to crops. The statement of the extreme dates of these frosts is of doubtful value in the determination of the risk of damage, as it is based on single occurrences. The authors have calculated the standard deviation from the average date of the last and first killing frosts, in spring and autumn respectively, and from this the frost risk may be computed. In two maps of the United States the standard deviations of dates of the last and first frosts are given as accurately as available data permit.

INVESTIGATIONS of the meteorology of the upper air were begun in 1913 at Melbourne. Rubber balloons were used, each with a meteorograph attached to a bamboo "spider." The work had not progressed far when the war interfered with its continuation. Mr.

Griffith Taylor has, however, given some account of the initial experiments (Bulletin No. 13, Commonwealth Bureau of Meteorology). He points out that Melbourne is not suited for these experiments, since the prevailing northerly winds cause a large proportion of the balloons to be carried out to sea and lost, while those carried by the easterly upper-air movement to the Victorian mountains are seldom recovered. No conclusive results can be deduced from the meagre data at present available, but after the war experiments are to be conducted under more favourable conditions at the meteorological observatory at Mount Stromlo, in Federal territory.

DR. W. VAN BEMMELEN has published in English a very interesting account of the "Results of Registering Balloon Ascents at Batavia" (*Batavia Javasche Bockhandel en Drukkerij*, 1916). Batavia lies a few degrees south of the equator, and these observations are valuable on account of the obvious care that has been taken to ensure accuracy and also on account of the equatorial situation. The ascents were 103 in all, spread over the six years 1910–15, and sixty-six available records were obtained. Dr. van Bemmelen gives tables showing the temperature and humidity, and also discusses the annual and daily variations. The most striking result is the low temperature that is found at great heights in these equatorial regions. Eighteen ascents reached the stratosphere, the mean height of which is shown as just under 17 km. At sea-level the mean temperature is 26° C., the freezing point is reached at 4·7 km., at 10 km. the temperature is −34° C., compared with −51° C. in England, but at 17 km. over Batavia the low value of −84° C. is found, against −54° C. over England. On one occasion a temperature of −90·2° C. (183° A. or −130° F.) was reached at 16·7 km. If any doubt remained about the existence of these low temperatures over the equator it has been removed by the publication of these results. The value given at 17 km., viz. −84° C., is based on twenty observations, and the standard deviation is small, so that there is no room for serious error in this value.

THE Journal of the Society of Siberian Engineers (Tomsk, January, 1916) devotes an article, illustrated by climatological charts, to the possibility of extending and developing the beet-sugar industry in Siberia. The desirability of establishing this industry in Siberia was pointed out by the Russian Government thirty years ago, and substantial fiscal relief was offered to pioneers, with the result that the first factory was set up in 1889 in the Minusinsk district of the Government of Yenisei. The seat of the beet-sugar industry, the western provinces of Russia, being now in enemy occupation, there is among the refugees from those regions a large amount of highly skilled labour available for employment elsewhere. The present moment is therefore opportune for directing attention to the subject and taking practical steps to foster a growing industry the development of which is of the greatest importance for the future of Siberia.

MESSRS. B. ARTIS and H. L. Maxwell have estimated the amounts of barium present in the leaves of certain tobaccos and trees, and publish the results in the *Chemical News* for August 11. The barium seems to be present in the ash of the leaf, partly as sulphate and partly in a form soluble in hydrochloric acid. The tobaccos examined were grown in Cuba, Pennsylvania, Connecticut, Sumatra, Wisconsin, and Mexico. The amount of barium (calculated as sulphate) found varied from 0·0132 per cent. to 0·0980 per cent. in the leaf, the lowest amount being found in the tobacco from Mexico and the highest in that from Pennsylvania. The stems invariably contained a larger amount. In the leaves of the trees examined the amount of barium sulphate found varied from 0·0071 per cent. (Sumac) to 0·0941 per cent. (wild grape) in immature leaves. In the mature leaves the amount is generally greater than in the immature where comparison is possible.

ACCORDING to a note by Mr. A. W. Knapp in the *Chemical News* for August 18, the pink colour frequently noticed by analysts to develop on the surface of margarine fat which has been exposed in the laboratory is not due to bacterial growth or to the action of light or oxygen. It is caused by the action of the vapour of mineral acids on a dye (probably dimethylamidoazobenzene) frequently present in margarine. A method of detecting the dye is described.

A NEW system of signalling which dispenses with semaphores has been in use on a section of the Pennsylvania Railroad for nearly eighteen months, and is described in the *Engineer* for September 1. Daylight lamp signals having a range of visibility of about 2500 ft. in broad daylight had been obtained, using a lamp of not less than 20 watts and a lens 8 in. to 10 in. diameter. In 1914 Dr. Churchill, of the Corning Glass Company, discovered the possibility of securing very long range from a small lamp arranged in the exact focal centre of a small wide-angle lens. Each light unit consists of a box painted dull black on the inside, and containing a 12-volt 6-watt lamp with tungsten horizontal helical filament. The lamp is placed in the focus of a lens 5·5 in. diameter, having a focal length of 2·25 in. In front of the lens is a convex glass cover of the same diameter, and is so constructed as to avoid the difficulty of sun glare, which was at first experienced when a flatter cover-glass was used. A 4-in. spherical mirror is placed over the lamp, and is so arranged as to give the signal indication at extremely close range. A hood 11 in. long is placed over the cover-glass in order to concentrate the lamp rays and to exclude the sun's rays. The article contains clear illustrations of the arrangement.

WE are informed that Messrs. Macmillan and Co., Ltd., have become the sole agents for the sale at home and abroad of the publications of Messrs. W. and A. K. Johnston, Ltd., of Edinburgh.

OUR ASTRONOMICAL COLUMN.

MAXIMA OF MIRA CETI, 1915.—From observations made between November 21, 1914, and March 8, 1916, Mr. Felix de Roy has concluded that the dates of maxima of Mira Ceti were January 25, 1915 (mag. 3·8), and December 20, 1915 (mag. 3·0), while the intervening minimum (mag. 8·7) occurred on August 22 (*Mem. della Soc. degli Spett. Ital.*, vol. v., series 2, July). The first maximum of 1915 was the feeblest observed since 1896, and its abnormal character has already been discussed by A. Bemporad (NATURE, vol. xcv., p. 405). The brightness at the minimum was also exceptional, having been equalled or exceeded only at six of the forty-three minima which have been sufficiently recorded. The second maximum of 1915 showed a normal amplitude of variation, and a normal interval from minimum to maximum, and a return of the star to normal conditions is suggested. A general discussion of the "perturbations" indicates the probability that the diminution and re-establishment of the brightness at maximum, of the amplitude, and of the interval from maximum to minimum, are progressive, and pass through a minimum when the maximum is abnormal. The disturbances usually extend through